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nal inventor of the plan. But though it answers very well for boats, it does not follow that it would do for ships; the difference between the labour of bending three or four inch planks and half inch boards, as well as the cost, is indeed so vastly great, as to show at once the inexpediency of the latter application.

Files and other instruments for various uses, made of stone ware, by G. Cumberland, esq.

Phil. Journal, vol. 25, p. 257.

Mr. Cumberland having found the wear of steel files to be very expensive in shaping some substances; it occurred to him, when considering what might be the best remedy, that as stone-ware is so hard as to blunt files, files might be as well made of stone-ware.

The first use he made of this suggestion was, to fold up in muslin, cambric, and Irish linen, separate pieces of wet clay, forcing them by the pressure of the hand into the interstices of the threads, so as to obtain a correct mould, on divesting them of the covering.

These Mr. Cumberland had well baked, and immediately found he had procured an entire new species of file capable even of destroying steel; and extremely useful in cutting glass, polishing and rasping wood, ivory, and all sorts of metals.

Mr. Cumberland having since reflected, that in glass grinding (the stones for which come from the north and are very expensive) in flattening metallic mirrors, laying mezzotints grounds, and a number of operations that require unexpensive friction, these stone-ware graters, may ultimately become very useful. Mr. Cumberland thinks this invention the more important, as in all operations of grinding, a great deal of manual labour must first be bestowed on the tool, whereas by this method it may be moulded in an instant, if a press is used as in pipe-making, and the expense is so vastly inferior to that incurred in constructing even the cheapest file.

Mr. Nicholson, in a note on this paper, states, that this ingenious invention promises to be of consider-

able use in the arts. The abrasion of surfaces is performed, either by a toothed tool as in filing, rasping, &c. or by a grinder in which cutting or hard particles are bedded with considerable firmness in a softer mass; or by scowering, polishing, &c. in which hard particles are more or less slightly retained in a soft or tenacious substance. Mr. Cumberland's instruments appear to promise great utility in the first and last of these processes that is, they may be used either with or without a fretting powder.

On a species of moss proposed as a substitute for wool, &c. in stuffing beds and furniture, by M. Parmentier.

Annales de Chimie v. 25, p. 175.

The dearth of wool, and more especially the property it has of imbibing putrid miasmata, and propagating contagious disorders, suggested the idea of supplying its place in beds by the *hypnum crispum*, L. a kind of moss of a moderate length, and of a somewhat fragrant smell. Mr. Isengard has sent to the society of Encouragement a specimen of this moss taken from a mattress, that has been in use for some years, with a paper in which he relates the methods of preparing it for domestic purposes.

This moss may be met with in Italy in every wood, particularly on beech trees; it is gathered in August and September; and is beaten like flocks; it does not form any lumps like them, or retain moisture, is little liable to decay, and costs only the price of the labour, so that four mattresses made with this moss will cost less than one of wool. It is only necessary to dry it in the shade to preserve its fragrance. No animal moisture produces any fermentation in this moss, as it does in wool; but lest wet should occasion it to germinate, it is recommended to steep it in lime-water, which destroys its power of vegetation.

Remarks... The fact mentioned in the above paper may be of use to the poor in this country; where doubtless moss may be procured fit for beds as well as elsewhere. Mr. Parmentier or Mr. Isengard, have not

however the merit of being the first discoverers of this useful application of moss.

Dr. Westring of Stockholm, many years ago, noticed it among other properties of mosses, and lichens, particularly relative to dyeing, in a paper inserted in the Transactions of the Royal Academy of Stockholm, wherein he states that they are used in several places for stuffing chairs, and sophas, instead of horse hair, and that the kinds most proper for this purpose are the *Lich Chalybeiformis*, *L. Barbatus*, and *L. Plicatus*.

Improved File for letters and receipts.

Trans. Soc. Arts.

A voucher cannot be disengaged from the common file without defacing it, by cutting it off, or by removing many others to get at it: and to return it to its proper place, is attended with more trouble and inconvenience. All this is avoided by the file contrived by Mr. White, which is perfectly simple and efficacious, and can cost little more than the common file.

Mr. White's file consists of a small metal tube, just large enough to admit the wire of the file, with a convex circular plate soldered to its lower end, to keep the papers from slipping off, in the centre of which a hollow screw is tapped to admit a screw on the lower end of the wire; which is of the usual size, and length, and hooked and pointed at its top in the common manner to receive the papers.

When any paper is wanted from this file (instead of taking off those above it, which cannot be replaced without much loss of time and trouble) the papers above it are to be slipped up towards the hook, the wire must then be unscrewed and removed with the papers upon it. The paper wanted may then be taken off the tube; the wire be put into its former place and screwed fast, and the other papers be drawn down the tube as before. To return the voucher, the same operation is to be repeated, and the voucher restored to its proper place.

The upper edges of the tube should be made conical with sharp edges,

and to fit the wire closely to admit papers to pass over it with more facility.

The Society of Arts presented Mr. White, with their silver medal for this invention.

Remarks... This contrivance will be found very useful in counting houses and offices. Some for the same purpose, that is effected by it, paste their receipts in books; but a less troublesome way is to pin them together in the order of their dates, and fold them together in the manner of eastern manuscripts, and keep them in port folios.

Wire files cannot be conveniently put in drawers, where all vouchers of consequence should be kept, it may therefore be of use to state a method of applying the principle of the above invention to a flexible file of silk bobbin or cord, which has just occurred to the writer; which is to have in the middle of the bobbin a small cylindrical clasp, such as is used for ladies' necklaces, which will then admit the papers to be separated and united again on it in the same manner as on Mr. White's file, above described.

Cheap method of teaching to write, by copies engraved on slates, by Mr. T. Warren of Buckingham street, London.

Trans. Soc. Arts.

These slates have horizontal parallel lines engraved on them at regular intervals, similar to those ruled on common writing copies; one of the small letters of the alphabet is engraved at the head of every second space, as a copy which the writer is to imitate. The numerals from one to nine are engraved in a reversed position in the intervals between the lines for the letters, so that on turning the slate, the learner may copy the figures in the same manner. In each case he may either copy the character at the head of each line, or may continue to copy a single one on all the lines.

Larger slates are prepared with examples in addition and subtraction;—these lessons may be varied at the pleasure of the master, by the methods pointed out in the following